

REMARKS

Applicants thank the Examiner for the thorough consideration given the present application. Claims 1-19 are currently being prosecuted. The Examiner is respectfully requested to reconsider his rejections in view of the Amendments and Remarks as set forth hereinbelow.

ALLOWABLE SUBJECT MATTER

It is gratefully acknowledged that the Examiner considers the subject matter of claims 1-13 and 19 as being allowable.

DRAWINGS

The Examiner has approved the drawings filed on August 30, 2005. The drawings now comply with US Patent practice. No further action is necessary with regard to the drawings.

ACKNOWLEDGEMENT OF INFORMATION DISCLOSURE STATEMENT

The Examiner has acknowledged the corrected Information Disclosure Statement form SB/08 filed on September 2, 2004. An initialed copy of the PTO-1449 has been received from the Examiner.

REJECTIONS UNDER 35 USC 103

Claims 14-18 stand rejected under 35 USC 103 as being unpatentable over Khandros et al, US 4,424,853 in view of either Porter, US 2,487,474 or Parlee et al, US 3,619,173. This rejection is respectfully traversed.

In the Khandros et al patent, nitrogen gas or other nonoxidizing gas is supplied to the mold cavity to displace air. Khandros et al. relate to a technology of casting metals by melting readily oxidized metal elements such as aluminum, or alloys. The technology disclosed in the Khandros et al patent is quite distinct as compared to the present invention.

The Porter patent discloses an apparatus and method for producing magnesium nitride by contacting a gas with magnesium vapor stream in the absence of an oxygen-yielding gas.

However, the Khandros et al and Porter patents do not disclose an apparatus according to the present invention as set forth in amended claims 14 wherein a combination of elements are provided to permit a fine particle producing mechanism to produce a fine metal particle active with respect to oxygen and a reactive gas supply mechanism is provided for supplying a reactive gas for reacting with the fine metal particles to produce an active substance which is more active with respect to oxygen than the molten metal and a reaction unit for deoxidation is directly connected to the mold for causing a reaction between the fine metal particles and the reactive gas to produce the active substance and immediately thereafter introducing the active substance directly into the cavity with the fine particle

producing mechanism and the reactive gas supply mechanism being coupled to the reaction unit.

In addition, the Khandros et al and Porter patents do not disclose the method as set forth in claim 18 wherein a combination of method steps permit the supplying of a heated gas to a metal which is more active with respect to oxygen than said molten metal, thereby to produce a feed material active with respect to oxygen and containing at least a metal gas or fine metal particles and supplying the feed material directly to the cavity to cause said feed material to be oxidized to develop a low-oxygen environment in the cavity, and causing at least the metal gas or said fine metal particles active with respect to oxygen to float in the cavity and be deposited on an inner wall surface of said cavity for deoxidation and then pouring the molten metal into the cavity.

The Parlee et al patent is directed to a process for desulfurizing. In contradistinction thereto the present invention is directed to an apparatus and a method wherein deoxidation of the fine metal particles occurs.

The Examiner acknowledges that the Khandros et al patent fails to teach the use of a directly connectable reaction unit as set forth in claims 14 and 15 and an active magnesium fine particle producing mechanism and a casting method as set forth in claims 16-18.

The Porter patent merely discloses a process for preparing magnesium nitride wherein the magnesium is reacted with nitrogen or a nitrogen-yielding gas. This disclosure does not overcome the deficiencies of the Khandros et al patent to render obvious the subject matter as set forth in the claims.

It is respectfully pointed out that the Parlee et al. patent is directed to a process for desulfurizing. In contradistinction thereto, the present invention relates to a fine particle producing apparatus for deoxidation. Further, in the Parlee et al. patent molten magnesium is utilized as a volatile treating material. It is respectfully submitted that Parlee et al does not render obvious the apparatus claims in view of the fact that the Parlee et al patent does not disclose any configuration corresponding to the reaction unit 144 of the present invention.

Porter discloses the preparation of magnesium nitride by vaporizing magnesium crystals, and mixing the vaporized magnesium with nitrogen or ammonia gas.

The Examiner has rejected claims 14 to 18 as being obvious. It is respectfully submitted that the references cited against the independent claims are relate to completely different technological fields. Accordingly, it is respectfully submitted that the present rejections have been obviated. Claims 14-18 are now believed to be in condition for allowance together with claims 1-13 and 19 that the Examiner has already indicated as being allowable.

NO PROSECUTION HISTORY ESTOPPEL

The claims have only been amended to clarify the claim language. No prosecution history estoppel would apply to the interpretation of the limitations set forth in claims 14-18 or claims 1-13 and 19 in view of the fact that this subject matter has been continuously presented since the original filing date of the present application.

REQUEST FOR INTERVIEW

If the Examiner has any questions with regard to this application, he/she is respectfully requested to contact the undersigned so that an interview can be arranged in connection with this application.

CONCLUSION

In view of the above remarks, it is believed that the claims clearly distinguish over the patents relied on by the Examiner, either alone or in combination.

Since the remaining patents cited by the Examiner have not been utilized to reject the claims, but to merely show the state of the art, no comment need be made with respect thereto.

In view of the above amendments and remarks, reconsideration of the rejections and allowance of all of the claims are respectfully requested.

All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections and that they be withdrawn. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance.

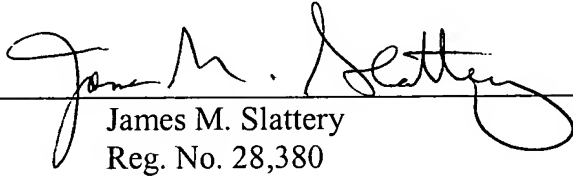
If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at (703) 205-8000 in the Washington, D.C. area.

A prompt and favorable consideration of this Amendment is respectfully requested.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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